CLAIMS:

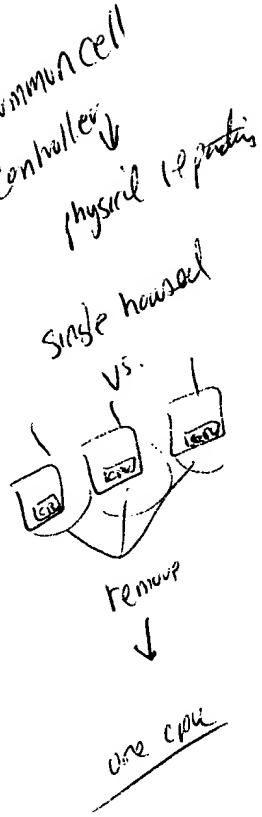
1. (Previously presented) A method for operating a multiple overlapping wireless local area subnetworks, the method comprising:

providing a common cell controller coupled to a plurality of RF ports, wherein the common cell controller in conjunction with each RF port provides wireless medium access to all of the wireless local area subnetworks for mobile units in a designated area associated with the RF port, wherein each RF port is configured to perform low level medium access control (MAC) functions and the cell controller is configured to perform high level MAC functions for the coupled plurality of RF ports;

using the cell controller to provide multiple service set identifications through each RF port, wherein each service set identification is associated with a corresponding wireless subnetwork,

wherein said RF ports are operated to perform low level MAC functions and to relay signals received from mobile units to said cell controller and to relay signals received from said cell controller to said mobile units,

and wherein said cell controller is operated to control association of said mobile units with said RF port, including sending and receiving association signals between said RF port and said cell controller, said association of said mobile units utilizing at least two wireless local area subnetworks occupying common physical space,



2. (Original) A method for operating a wireless local area network as specified in Claim 1, wherein signals are sent, between said RF port and said cell controller using a first data protocol, and wherein signals are sent between said RF ports and said

mobile units using a second data protocol, and wherein said signals between said RF port and said cell controllers comprise data packets using said first data protocol encapsulating data packets using said second data protocol.

3. (Original) A method for operating a wireless local area network as specified in Claim 2 wherein said first protocol is an Ethernet protocol.

4. (Original) A method for operating a wireless local area network as specified in Claim 3 wherein said second protocol is an IEEE Standard 802.11 protocol.

5. (Original) A method for operating a wireless local area network as specified in Claim 4 wherein said at least two wireless local area subnetworks comprise a subnetwork for public use and a subnetwork for secure use.

6. (Original) A method for operating a wireless local area network as specified in Claim 5, wherein upon activation of said subnetwork for secure use, suspending service on said subnetwork for public use.

7. (Currently amended) The method of claim 1 wherein the RF port includes a radio module, a digital processor, random access memory and read-only memory, the method further comprising:

storing a bootloader program in said read-only memory,

operating said digital processor to download instructions from a computer to said random access memory using said bootloader program, and

operating said RF port under said downloaded instructions to send and receive messages over at least two wireless local area subnetworks occupying common physical space using said radio module.

8. (Original) A method as specified in Claim 7, wherein said step of operating said RF port comprises receiving messages from said computer including protocol message portions for RF message transmission, and transmitting said message including said protocol message portions as an RF signal.

9. (Original) A method as specified in Claim 8, wherein said step of operating said RF port comprises receiving RF messages having an RF protocol and sending said RF messages to said computer as data signals encapsulated in a further message protocol.

10. (Original) A method as specified in Claim 9 further comprising interpreting said RF protocol using said downloaded instructions and sending said RF messages to said computer only if said RF messages include an identification of said RF port.

11. (Original) A method as specified in Claim 7 wherein said downloaded instructions configure said computer and said RF port to operate as an access point for communication with mobile units.

12. (Original) A method as specified in Claim 7 wherein said computer is operated to control association of said mobile units with said computer and RF port.

13. (Original) A method as specified in Claim 7 wherein said downloaded instructions configure said computer and said RF port to operate as a mobile unit for communications with access points.

14. (Original) A method as specified in Claim 7 wherein said downloaded instructions configure said computer and said RF port to operate as either an access point or a mobile unit under control instructions form said computer.

15. (Previously presented) A method for transmitting signals having a wireless signal format using an RF port, the RF port having an Ethernet interface whereby the RF port is coupled to a wired network, and having a data processor and an RF module, wherein the RF port is configured to perform low level MAC functions, and wherein the wired network comprises at least one of a physical entity and a logical entity to perform high level MAC functions, the method comprising:

providing an Ethernet data packet formatted according to high level MAC functions over the wired network to said Ethernet interface, said Ethernet data packet encapsulating as data a data message having said wireless signal format according to high level MAC functions on said wired network;

operating said data processor to provide said data message to said RF module;

operating said RF module to transmit said data message as an RF signal to a mobile unit; and

operating said RF module to transmit said data message as an RF signal over at least two wireless local area subnetworks occupying common physical space.

16. (Previously presented) A method as specified in Claim 15 further comprising operating said data processor to perform a cyclic redundancy computation on said data message and adding the result thereof to said data message.

17. (Previously presented) A method as specified in Claim 15 further comprising operating said data processor to control said radio module.

18. (Previously presented) A method for receiving signals having a wireless signal format including wireless address data and message data at an RF port, the RF port having a wired network interface whereby the RF port is coupled to a wired network, and having a data processor and an RF module, wherein the RF port is configured to perform low level MAC functions and the wired network is configured to perform high level MAC functions, the method comprising:

operating said RF module to receive RF signals from at least two wireless local area subnetworks occupying common physical space having said wireless signal format;

operating said data processor to receive wireless data signals from said RF module and provide data signals to said wired network interface comprising a data packet having a source address corresponding to said RF port formatted according to high level MAC functions on said wired network, said data packet including said wireless address data and said message data.

19. (Previously presented) A method for receiving RF message signals having a wireless signal format including an address data format and message data using an RF port, the RF port having an Ethernet interface whereby the RF port is coupled to a wired

network, and having a data processor and an RF module, wherein the RF port is configured to perform low level MAC functions and the wired network is configured to perform high level MAC functions, the method comprising:

receiving said RF message signals in said RF module from at least two wireless local area subnetworks occupying common physical space;

providing said signals as data signals to said data processor;

operating said data processor to interpret address data in said data signals; and,

in dependence on said address data, encapsulating said message data and address data in an Ethernet packet and providing said Ethernet packet to said Ethernet interface for transmission on said wired network according to high level MAC functions.

20. (Previously presented) A method as specified in Claim 19 wherein said data processor is operated to encapsulated said address data in said Ethernet packet.

21. (Previously presented) A method as specified in Claim 19 wherein said data processor is further operated to perform a cyclic redundancy computation on said message data and to compare the result thereof with corresponding data received in said data signals.

22. (Previously presented) A method as specified in Claim 19, further comprising operating said data processor to control said radio module.

23. (Previously presented) A simplified wireless local area network system comprising:

a computer having a data processor and a memory;

a plurality of RF ports, each ~~an~~ RF port having an RF port data processor, an RF module and a data communications interface coupled to said computer;

a first program in said memory of said computer for operating said computer data processor to perform high level MAC functions for said plurality of RF ports, said functions including association with mobile units via at least two wireless local area subnetworks occupying common physical space; and

a second program for operating said RF port data processor to perform low level MAC functions.

24. (Previously presented) A system as specified in Claim 23 wherein said second program operates said RF port data processor to perform second wireless data communications functions, including control of said RF module.

25. (Previously presented) A system as specified in Claim 23 wherein said second program operates said RF port data processor to perform second wireless data communications functions, including cyclic redundancy check functions.

26. (Previously presented) A system as specified in Claim 23 wherein said second program is stored in said computer memory and wherein said RF port data processor is arranged to download said second program.

27. (Previously presented) A wireless access device for providing wireless access to a communication system, comprising a modem for sending and receiving data messages between said communications system and an RF port, the RF port comprising a data interface coupled to said modem, a data processor and an RF module, said data processor being programmed to receive data messages from said modem, to format said messages for wireless data communications and to provide said formatted messages to said RF module for transmission by RF data signals to at least one mobile unit via at least two wireless local area subnetworks occupying common physical space, and to receive RF data signals from said at least one mobile unit via at least two wireless local area subnetworks occupying common physical space, and to provide data messages to said modem to be sent on said communications system, wherein said RF port performs low level MAC functions and said communication system performs high level MAC functions.

28. (Previously presented) A wireless access device as specified in Claim 27 wherein said communications system is a DSL communications system connected to the Internet, and wherein said modem comprises a DSL modem.

29. (Previously presented) A wireless access device as specified in Claim ~~26~~ 27 wherein said communications system is a two-way cable communications system connected to the Internet, and wherein said modem comprises a cable modem.

30. (Previously presented) A wireless access device as specified in Claim ~~27~~ 28 wherein said communication system comprises a fiber optic system, and wherein said modem comprises a fiber optical modem.

31. (Previously presented) A method for providing wireless access to the Internet, comprising:

providing a modem coupled to the Internet and having a data communications interface connected to an RF port,

configuring said RF port for wireless data communication to a mobile unit having a predetermined wireless communications address, and

providing at least one mobile unit configured with said predetermined wireless communications address for conducting RF data communications with said RF port via at least two wireless local area subnetworks occupying common physical space, said RF port being arranged to relay communications between said mobile unit and said modem, wherein said RF port performs low level MAC functions and said Internet performs high level MAC functions.

32. (Previously presented) The method specified in Claim 31 wherein said step of providing said mobile unit, comprises providing a computer having an RF port.

33. (Previously presented) A system for providing wireless data communications between mobile units and a wired network operating according to a wireless data communications protocol having high level MAC functions including association and roaming functions, comprising:

at least one RF port performing lower level MAC functions, said at least one RF port having an RF module for sending and receiving data messages to said at least one mobile unit using capable of operating via at least two wireless local area subnetworks

occupying common physical space, having a wired interface for sending and receiving data messages to and from said wired network using a wired communications protocol, and a programmed processor for relaying data messages received on said wired interface using said RF communications protocol and for relaying data messages received by said RF module using said wired communications protocol; and

at least one cell controller for sending data messages to said wired interface of said RF port and for receiving data messages from said RF port wherein said cell controller performs said high level MAC functions.

34. (Previously presented) A system as specified in claim 33, wherein there are provided a plurality of said RF ports, and wherein said cell controller is arranged to address said data messages to said RF ports using said wired communication protocol.

35. (Previously presented) A system as specified in claim 33 wherein said at least one mobile unit is associated with one of said RF ports, and wherein said processor is programmed to interpret source address data received in said RF communications protocol and for relaying a received message using said wired communications protocol only if said source address data corresponds.

36. (Previously presented) A system as specified in claim 33 wherein said cell controller is arranged to provide messages to said RF port comprising mobile unit address data and message data encapsulated in data packet following said wired communication protocol.

37. (Previously presented) A system as specified in claim 36 wherein said cell controller is arranged to provide said mobile unit address data and said message data in said RF communications protocol encapsulated in said wired communication format.

38. (Previously presented) A system as specified in claim 33 wherein said RF port is arranged to encapsulate messages received by said RF module in a data packet using said wired communication protocol.

39. (Previously presented) The method of claim 1 wherein the cell controller provides extended service set identifiers (ESS).

40. (Previously presented) The method of claim 1 wherein the cell controller provides basic service set identifiers (BSS).

41. (Previously presented) The method of claim 1 wherein the RF port allocates data bandwidth amongst the service set identifications based on commands from cell controller.

42. (Previously presented) The method of claim 1 wherein the RF port generates an 802.11 beacon for each service set identifier.

43. (Previously presented) The method of claim 1 wherein the cell controller determines which one of the multiple overlapping wireless local area subnetworks a mobile unit communicating through an RF port is operating on.

44. (Previously presented) The method of claim 1 wherein the cell controller verifies levels of security provided in connection with access by mobile units to the multiple overlapping wireless local area subnetworks.

45. (Previously presented) The method of claim 1 wherein the cell controller prioritizes communications through the multiple overlapping wireless local area subnetworks.